NEW

OMRON

Water-resistive Sensor I/O Connectors

XS5 Smartclick

Simple, Twist-and-Click Connection. Meet the Next-generation M12 Smartclick Connector!

realizing

The simple, Smartclick XS5 Connector is completely compatible with conventional screw-type M12 connectors.

Patent Pending

A simple twist is all it takes to connect the Smartclick XS5, making it an ideal next-generation M12 connector. It's also easy to introduce to existing facilities because it takes only 1/4 the time of ordinary wiring processes, and it's compatible with conventional, screw-type connectors.

The Smartclick connector solves the problems of previous screw-type connectors.

1 Problem It's troublesome to screw the connectors together.

Solution

It's a twist-and-click connection.

An innovative new lock structure makes connection extremely simple. The lock mechanism is internal, so it will no longer become jammed by sputtered fluids or dust. Also, the use of a movable lock bolt makes it possible to connect the Smartclick XS5 to a screw-type M12 connector.

All combinations are connectable.

	XS5 Smartclick Plug Connector	M12 plug connector
XS5 Smartclick Socket Connector	Twist-and-click connection	Screw connection
M12 socket connector	Screw connection	Screw connection

2 Problem There's nothing to tell you that it's connected.

Solution

The Smartclick XS5 "clicks" to tell you it's connected.

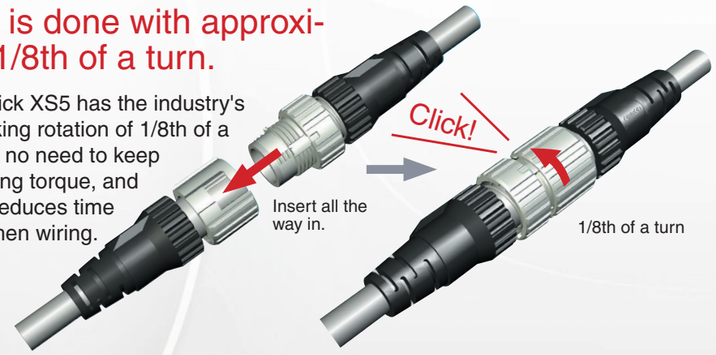
A positive clicking feel tells you for sure that the Connector is securely locked.

3 Problem It's difficult to keep track of locking torque values.

Solution

Locking is done with approximately 1/8th of a turn.

The Smartclick XS5 has the industry's shortest locking rotation of 1/8th of a turn. There's no need to keep track of locking torque, and this greatly reduces time and effort when wiring.

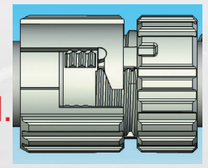


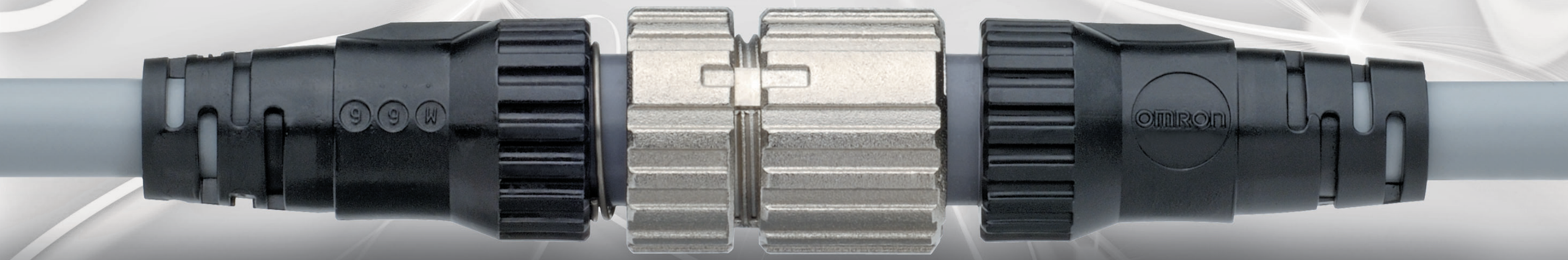
4 Problem The connection sometimes vibrates loose.

Solution

A bayonet lock mechanism is used.

By using a bayonet mechanism, which is a common locking method, the Smartclick XS5 eliminates any concerns about loosening.





Note: Smartclick is a registered trademark of the OMRON Corporation.

Water-resistive Smartclick Connectors That Reduce Installation Work

- A newly developed lock structure that maintains compatibility with conventional, screw-type M12 connectors.
- Simply insert the Connectors, then turn them approximately 1/8 of a turn to lock.
- A positive click indicates locking.
- Features the same degree of protection (IP67) as conventional, screw-type M12 connectors.
- A full line-up of models is planned.

■ Specifications

Rated current	4 A
Rated voltage	250 VDC
Contact resistance (connector)	40 mΩ max. (20 mV max., 100 mA max.)
Insulation resistance	1,000 MΩ min. (at 500 VDC)
Dielectric strength (connector)	1,500 VAC for 1 min (leakage current: 1 mA max.)
Degree of protection	IP67 (IEC60529)
Insertion tolerance	50 times min.
Lock strength	Pulling: 100 N/15 s, Twisting: 1 N·m/15 s
Cable holding strength	100 N/15 s (for cable diameter of 6 mm)
Lock operating force	0.1 N·m to 0.25 N·m
Ambient temperature range	Operating: –25 to 70°C

■ Materials and Finish

Item / **Model**		**XS5F**	**XS5H**	**XS5W**
Contacts		Phosphor bronze/nickel base, 0.4-μm gold-plating		
Fixtures		Nickel-plated zinc alloy		
Pin Block		PBT resin (UL94V-0)		
Cover		Polyester elastomer (UL94V-0)		
O-ring		Rubber		
Cable	**Standard cable**	UL AWM2464, 6-mm dia. 4 cores × AWG20 (0.12/49)		
	Vibration-proof robot cable	UL AWM2464, 6-mm dia. 4 cores × AWG200 (0.08/110)		
	Oil-resistant polyurethane cable	6 dia. 4 cores × 0.5 mm^2 (0.12/45)		

■ Connection Combinations

OMRON model No.		**Smartclick Plug Connectors**	**M12 Plug Connectors**
		XS5H, XS5W (plug side)	**XS2H, XS2G XS2W (plug side), XS2R (plug side), XS2M**
Smartclick Socket Connectors	**XS5F, XS5W (socket side)**	◎	❍
M12 Socket Connectors	**XS2F, XS2C, XS2W (socket side), XS2R (socket side), XS2P**	❍	❍

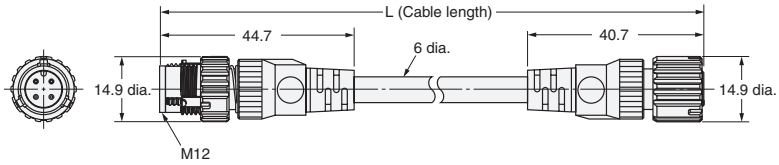
◎: Connected by twisting.
❍: Connected by screwing.

Note: Smartclick is a registered trademark of the OMRON Corporation.

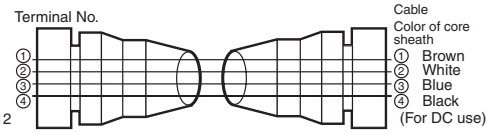
XS5W-D421-□81-A Standard Cable
XS5W-D421-□81-F Vibration-proof Robot Cable
XS5W-D421-□81-P Oil-resistant Polyurethane Cable *NEW*

Smartclick

■ Dimensions



Wiring Diagram for 4 Cores



Note: The cover of the Standard Cable (XS5W-D421-□81-A) is black, and the cover of the Vibration-proof Robot Cable (XS5W-D421-□81-F) is warm gray.

■ Ordering Information

Cable type	Cable connection directions	No. of cable cores	Cable length (m)	Model	Minimum order
Standard cable	Straight/straight	4	1	**XS5W-D421-C81-A**	10
			2	**XS5W-D421-D81-A**	
			3	**XS5W-D421-E81-A**	
			5	**XS5W-D421-G81-A**	5
			10	**XS5W-D421-J81-A**	
Vibration-proof robot cable			1	**XS5W-D421-C81-F**	10
			2	**XS5W-D421-D81-F**	
			3	**XS5W-D421-E81-F**	
			5	**XS5W-D421-G81-F**	5
			10	**XS5W-D421-J81-F**	
Oil-resistant polyurethane cable *NEW*			2	**XS5W-D421-D81-P**	10
			5	**XS5W-D421-G81-P**	5
			10	**XS5W-D421-J81-P**	

Note: Ask your OMRON representative about other specifications.

■ Model Number Legend

Use this model number legend to identify products from their model number. When ordering, use a model number from the table in *Ordering Information*.

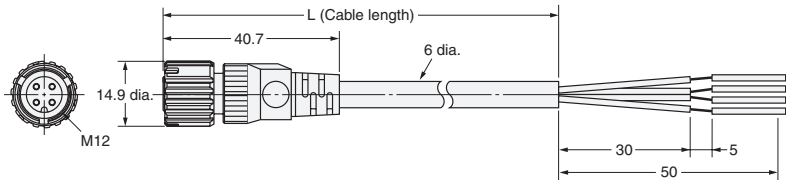
XS5W - D□2□ - □□1 - □
1 2 3 4 5 6 7 8 9

1. **Type**
   W: Connectors connected to cable, socket and plug on cable ends
2. **AC/DC (Mating Section Form)**
   D: DC
3. **Connector Poles**
   4: 4 poles
4. **Contact Plating**
   2: 0.4-μm gold plating
5. **Cable Connection Directions**
   1: Straight/straight
6. **Cable Length**
   A: 0.3 m G: 5 m
   B: 0.5 m H: 7 m
   C: 1 m J: 10 m
   D: 2 m K: 15 m
   E: 3 m L: 20 m
   F: 4 m
7. **Connections**
   8: ① Brown, ② White, ③ Blue, ④ Black (Numbers inside circles are terminal numbers.)
8. **Connectors on One End/Both Ends**
   1: Both ends
9. **Cable Specifications**
   A: Standard cable
   F: Vibration-proof robot cable
   P: Oil-resistant polyurethane cable

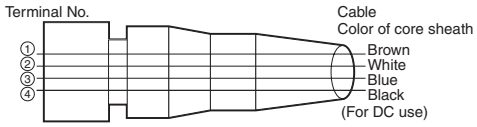
XS5F-D421-□80-A Standard Cable
XS5F-D421-□80-F Vibration-proof Robot Cable
XS5F-D421-□80-P Oil-resistant Polyurethane Cable *NEW*

Smartclick

■ Dimensions



Wiring Diagram for 4 Cores



Note: The cover of the Standard Cable (XS5F-D421-□81-A) is black, and the cover of the Vibration-proof Robot Cable (XS5F-D421-□81-F) is warm gray.

■ Ordering Information

Cable type	Cable connection direction	No. of cable cores	Cable length (m)	Model	Minimum order
Standard cable	Straight	4	1	**XS5F-D421-C80-A**	10
			2	**XS5F-D421-D80-A**	
			3	**XS5F-D421-E80-A**	
			5	**XS5F-D421-G80-A**	5
			10	**XS5F-D421-J80-A**	
Vibration-proof robot cable			1	**XS5F-D421-C80-F**	10
			2	**XS5F-D421-D80-F**	
			3	**XS5F-D421-E80-F**	
			5	**XS5F-D421-G80-F**	5
			10	**XS5F-D421-J80-F**	
Oil-resistant polyurethane cable *NEW*			2	**XS5F-D421-D80-P**	10
			5	**XS5F-D421-G80-P**	5
			10	**XS5F-D421-J80-P**	

Note: Ask your OMRON representative about other specifications.

■ Model Number Legend

Use this model number legend to identify products from their model number. When ordering, use a model number from the table in *Ordering Information*.

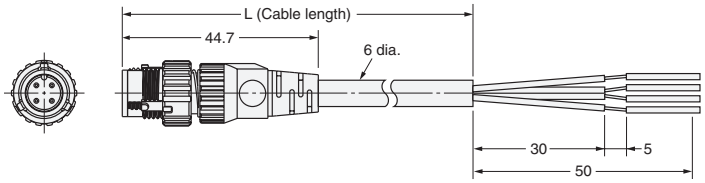
XS5F - □□2□ - □□0 - □
1 2 3 4 5 6 7 8 9

1. **Type**
   F: Connector connected to cable, socket on one cable end
2. **AC/DC (Mating Section Form)**
   D: DC
3. **Connector Poles**
   4: 4 poles
4. **Contact Plating**
   2: 0.4-μm gold plating
5. **Cable Connection Direction**
   1: Straight
6. **Cable Length**
   A: 0.3 m G: 5 m
   B: 0.5 m H: 7 m
   C: 1 m J: 10 m
   D: 2 m K: 15 m
   E: 3 m L: 20 m
   F: 4 m
7. **Connections**
   8: ① Brown, ② White, ③ Blue, ④ Black (Numbers inside circles are terminal numbers.)
8. **Connectors on One End/Both Ends**
   0: One end
9. **Cable Specification**
   A: Standard cable
   F: Vibration-proof robot cable
   P: Oil-resistant polyurethane cable

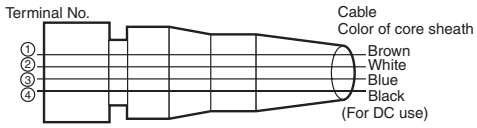
XS5H-D421-□80-A Standard Cable
XS5H-D421-□80-F Vibration-proof Robot Cable
XS5H-D421-□80-P Oil-resistant Polyurethane Cable *NEW*

Smartclick

■ Dimensions



Wiring Diagram for 4 Cores



Note: The cover of the Standard Cable (XS5W-D421-□81-A) is black, and the cover of the Vibration-proof Robot Cable (XS5W-D421-□81-F) is warm gray.

■ Ordering Information

Cable type	Cable connection direction	No. of cable cores	Cable length (m)	Model	Minimum order
Standard cable	Straight	4	0.3	**XS5H-D421-A80-A**	10
			1	**XS5H-D421-C80-A**	
			2	**XS5H-D421-D80-A**	
			5	**XS5H-D421-G80-A**	5
Vibration-proof robot cable			0.3	**XS5H-D421-A80-F**	10
			1	**XS5H-D421-C80-F**	
			2	**XS5H-D421-D80-F**	
			5	**XS5H-D421-G80-F**	5
Oil-resistant polyurethane cable *NEW*			0.3	**XS5H-D421-A80-P**	10
			2	**XS5H-D421-D80-P**	5
			5	**XS5H-D421-G80-P**	

Note: Ask your OMRON representative about other specifications.

■ Model Number Legend

Use this model number legend to identify products from their model number. When ordering, use a model number from the table in *Ordering Information*.

XS5H - □□21 - □□0 - □
1 2 3 4 5 6 7 8 9

1. **Type**
   F: Connector connected to cable, plug on one cable end
2. **AC/DC (Mating Section Form)**
   D: DC
3. **Connector Poles**
   4: 4 poles
4. **Contact Plating**
   2: 0.4-μm gold plating
5. **Cable Connection Direction**
   1: Straight
6. **Cable Length**

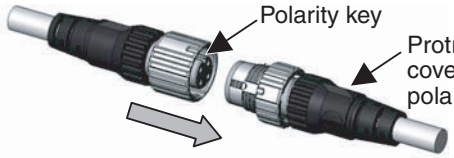
A:	0.3 m	G:	5 m
B:	0.5 m	H:	7 m
C:	1 m	J:	10 m
D:	2 m	K:	15 m
E:	3 m	L:	20 m
F:	4 m		

7. **Connections**
   8: ① Brown, ② White, ③ Blue, ④ Black (Numbers inside circles are terminal numbers)
8. **Connectors on One End/Both Ends**
   0: One end
9. **Cable Specifications**
   A: Standard cable
   F: Vibration-proof robot cable
   P: Oil-resistant polyurethane cable

■ Connecting the Smartclick XS5

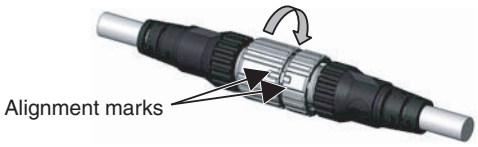
1. Connecting the Smartclick XS5 Plug and Socket

- Align the projection on the plug cover with the polarity key on the socket, then insert the plug all the way in.



- Hold the knurled socket grip, then insert the projection on the plug into the groove of the socket.

- Turn the knurled grips of the socket clockwise approximately 45 degrees in respect to the plug. A click will indicate that the Connectors are locked. The locking condition can also be confirmed by the alignment marks on the plug and socket.



2. Connecting the Smartclick XS5 and XS2

- Align the projection on the plug cover with the polarity key on the socket, then insert the plug all the way in.
- In the same way as when connecting two XS2 Connectors, screw the knurled grip in the clockwise direction.
- Use your fingers to tighten the Connectors sufficiently.

■ Safety Precautions

Precautions for Correct Use

Do not use the Connectors in an atmosphere or environment that exceeds the specifications.

Connector Connection and Disconnection

- When connecting or disconnecting Connectors, be sure to hold the Connectors by hand.
- Do not hold the cable when disconnecting Connectors.
- When joining Connectors, be sure to insert the plug all the way to the back of the socket before attempting to lock the Connectors.
- Do not use tools of any sort to join the Connectors. Always use your hands. Pliers or other tools may damage the Connectors.
- When joining the Connectors to XS2 or other M12 Connectors, tighten the lock by hand to a torque of 0.39 to 0.49 N·m.

Wiring

- Always confirm wiring diagrams before wiring sensors, limit switches, or other devices.
- Lay the cables so that external force is not applied to the Connectors. Otherwise, the degree of protection (IP67) may not be achieved.

Degree of Protection

- The degree of protection of Connectors (IP67) is not for a fully watertight structure. Do not the Connectors underwater.
- Do not step on or place any objects on the Connectors. Doing so may damage the Connectors.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. G016-E1-01 **In the interest of product improvement, specifications are subject to change without notice.**

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